Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

Claim 1. (Currently amended) A method for dynamically mixing header suppression techniques for transmitting data over a Data Over Cable Service Interface Specification (DOCSIS) network, comprising the steps of:

(a) communicating a plurality of header suppression techniques and a unique index number assigned to each of the plurality of header suppression techniques to a cable modem termination system;

(b) receiving a plurality of data packets to be transmitted;

(c) identifying which of the received data packets have a header that should be suppressed;

(d) selecting a header suppression technique from the plurality of header suppression techniques for each of the identified data packets;

(e) appending a packet header element to each of the identified data packets, the packet header element containing the index number assigned to the header suppression technique selected for each of the identified data packets; and

(f) suppressing a header of each of the identified data packets using the header suppression technique selected for each of the identified data packets; and

(g) concatenating each data packet within a single DOCSIS transmit burst to form a mixed protocol burst.

Claim 2. (Currently amended) The method of claim 1, further comprising the

~~steps~~ <u>step</u> of:

~~(g) concatenating each data packet within a single DOCSIS transmit burst to~~
~~form a mixed protocol burst; and~~

(h) transmitting the mixed protocol burst to the cable modem termination system.

Claim 3. (Previously presented) The method of claim 1, wherein each of the

received data packets that are unknown Internet Protocol (IP) packets are identified as

having a header that should be suppressed in said identifying step (c).

Claim 4. (Previously presented) The method of claim 3, wherein DOCSIS

payload header suppression is selected in said selecting step (d) for each of the received

data packets that are unknown IP packets.

Claim 5. (Previously presented) The method of claim 1, wherein each of the

received data packets that are Internet Protocol (IP)/Real-Time Transfer Protocol (RTP)

packets with dynamically changing patterns are identified as having a header that should

be suppressed in said identifying step (c).

Claim 6. (Original) The method of claim 5 wherein RTP suppression is selected

in said selecting step (d) for each of the received data packets that are IP/RTP packets

with dynamically changing patterns.

Claim 7. (Previously presented) The method of claim 1, wherein each of the received data packets that are Internet Protocol (IP)/ Transmission Control Protocol (TCP) variable length packets are identified as having a header that should be suppressed in said identifying step (c).

Claim 8. (Original) The method of claim 7, wherein dynamic delta encoding suppression is selected in said selecting step (d) for each of the received data packets that are IP/TCP variable length packets.

Claim 9. (Previously presented) A method for expanding data packet headers transmitted over a Data Over Cable Service Interface Specification (DOCSIS) network, comprising the steps of:

(a) receiving a mixed protocol burst comprising a plurality of data packets having headers suppressed in accordance with a corresponding plurality of header suppression techniques;

(b) identifying each data packet within the mixed protocol burst that has a suppressed header;

(c) searching a lookup table to select a set of rules from a plurality of sets of rules for expanding a suppressed header of each of the data packets identified in step (b); and

(d) expanding a suppressed header of each of the data packets identified in step (b) according to a set of rules selected in step (c).

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Claim 10. (Original) The method of claim 9, wherein each data packet identified in said identifying step (b) has an appended packet header element containing an index number.

Claim 11. (Previously presented) The method of claim 10, wherein said searching step (c) uses each index number contained in each appended packet header element to search the lookup table.

Claim 12. (Previously presented) The method of claim 11, wherein DOCSIS payload header expansion rules are used in said expanding step (d) for unknown Internet Protocol (IP) packets.

Claim 13. (Previously presented) The method of claim 11 wherein Real-Time Transfer Protocol (RTP) expansion rules are used in said expanding step (d) for Internet Protocol (IP)/RTP packets with dynamically changing patterns.

Claim 14. (Previously presented) The method of claim 11, wherein dynamic delta encoding expansion rules are used in said expanding step (d) for Internet Protocol (IP)/Transmission Control Protocol (TCP) variable length packets.

Claim 15. (Currently amended) A system for dynamically mixing header suppression techniques transmitted over a Data Over Cable Service Interface Specification (DOCSIS) network, comprising:

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one or more cable modems that suppress data packet headers by selectively using one of a plurality of header suppression techniques <u>wherein said one or more cable modems concatenates each data packet having a suppressed header into a single DOCSIS transmit burst to form a mixed protocol burst</u>; and

a cable modem termination system (CMTS) enabled to expand said data packet headers by using a set of expansion rules corresponding to said selected one of said plurality of header suppression techniques, wherein said one or more cable modems assigns a unique index number to each one of said plurality of header suppression techniques.

Claim 16. (Previously presented) The system of claim 15, wherein said one or more cable modems appends a packet header element to each data packet having a suppressed header, wherein said packet header element includes said unique index number assigned to the header suppression technique used to suppress each data packet header.

Claim 17. (Canceled).